

Questions and Answers about Rabies

Q. What is rabies?

A. Rabies is a viral infection that affects the nervous system of mammals. It invariably causes swelling of the brain and death after a relatively short illness.

Q. How is rabies transmitted?

A. The rabies virus is found in the nervous tissue of infected mammals. As the virus works its way to the brain, it begins to be secreted in the saliva of the animal. People and mammals get rabies when infectious saliva is introduced into the body, usually through a bite from an infected animal. Rabies transmissions from other types of exposures are extremely rare. These types of exposures include saliva or nervous tissue entering an open wound or saliva or nervous tissue coming into contact with a mucous membrane such as the eyes, nose or mouth.

Q. What are the symptoms of rabies in people?

A. After an average of 30 to 50 days (as short as 14 days or longer than a year) from exposure to a rabid animal, a person develops an illness that may include fever, sore throat, stiff muscles, headache, tiredness, restlessness, nausea, and itching or tingling at the site of the bite. As the disease progresses, a person may become agitated, with periods of calm. Fear of water caused by severe throat spasms when trying to drink may occur. Paralysis then starts in the legs and moves towards the head. Most people die from cardiac arrest or respiratory failure within a short period after onset of illness.

Q. What are symptoms of rabies in animals?

A. The animal may have a change in personality or behavior. For example, wild animals may lose their fear of humans or pets may become aggressive or withdraw. Often the animal does not eat, may fear water, and have an unsteady gait. Paralysis may start in the rear quarters and progress to the front of the body.

Q. What should I do if I am bitten by an animal or exposed to the saliva of a possibly rabid animal?

A. First, thoroughly wash the wound with soap and running water. Gather as much information about the animal as possible. Contact your physician as soon as possible and notify your local public health unit or the state health department as well as local law enforcement.

Q. How long is the rabies virus infectious after it is outside of the rabid animal?

A. The rabies virus is a very fragile virus. As soon as the saliva dries the virus is no longer infectious. The virus is easily killed by soaps, detergents, bleach, alcohol and ultraviolet light

Q. What will happen to the animal after person has been bitten or otherwise exposed?

A. If the animal is a healthy domestic dog, cat or ferret it should be confined and held for observation for 10 days. A licensed veterinarian must examine the animal at the beginning and end of the 10-day observation period. If the animal develops symptoms



suggestive of rabies, it should be humanely destroyed and the brain sent for testing. If the animal is healthy at the end of the 10-day period, then no rabies exposure occurred and the person bitten will not need rabies shots.

If the animal is not a domestic dog, cat or ferret, it should be captured, humanely destroyed and the brain sent for rabies testing. If the animal is a domesticated farm animal (cow, horse, etc.), consult with your physician and veterinarian.

Q. What is meant by confinement?

A. Confinement in North Dakota, as it pertains to rabies, means separation of an animal from humans, other than the owner, caretaker, a member of the owner's family, or the caretaker's employees, and from other animals, by means of a building, cage, fence, pen or other secure enclosure that restricts the animal's movement within definite boundaries and prevents the animal from exiting the enclosure.

Q. Why can a healthy domestic dog, cat or ferret be held for ten days?

A. Studies have shown that dogs, cats and ferrets only shed the rabies virus in the saliva for a short period (usually 4 to 5 days) of time before they develop symptoms. If the animal has not developed symptoms by the tenth day after the exposure then the animal would not have been shedding the virus at the time of the exposure.

Q. Why can't the ten day observation period be used for other animals?

A. Only domestic dogs, cats and ferrets have been studied enough to determine with certainty the period of viral shedding. Although this period of viral shedding may be similar for other species of animals, without more studies, there is too much uncertainty and too great of risk for error.

Q. What if the animal is not available for observation or testing?

A. If you have been bitten or otherwise exposed to the saliva of an animal that is not available for observation or testing, contact your physician, local public health unit or state public health department and local law enforcement. If it was a domestic dog, cat or ferret, try to locate the animal or the owner of the animal. If the animal cannot be located, speak with your physician, you may need to start preventive treatment for rabies which will include rabies vaccine.

Q. Does an animal have to be destroyed to be tested for rabies?

A. Yes, the only proven test is to examine the brain for the rabies virus. Blood tests have proven not to be reliable. Because rabies is so serious, the test needs to be as accurate and reliable as possible.

Q. What if the owner of an animal who has bitten someone refuses to have it evaluated for rabies?

A. In situations where the owner refuses to have an animal evaluated for rabies, you should contact local law enforcement officials.

Q. How can I protect myself from rabies?



- A. The best way to protect you and your family from rabies is to:
- have your domestic dog, cat or ferret currently vaccinated against rabies.
 - avoid contact with wild or stray animals, and domestic/wild hybrids. Do not touch dead animals. Keep wild animals out of homes, workplaces and other dwellings.
 - report stray, sick and injured animals to local animal control authorities or law enforcement officials.

Q. What is a domestic/wild hybrid?

A. A domestic/wild hybrid is the offspring of a domestic animal crossed with a wild animal. The most common example is a domestic dog/wolf hybrid. Even though wolves may be raised in captivity they are still considered wild animals.

Q. Are there any vaccines for wild or hybrid animals?

A. At this time no vaccines have been approved for wild or hybrid animals. Although some zoos vaccinate their animals for rabies, this is only done to try to protect the animals from rabies. A wild or hybrid animal that bites a person should be humanely destroyed and the brain submitted for rabies testing. If the animal is a valuable specimen (at a zoo for example) then rabies shots can be given to the exposed person instead of destroying the animal.

Q. What happens if my dog, cat or ferret is bitten or fights with a wild animal or another animal that may have rabies?

A. If the animal that bit your pet can be captured, have the brain tested for rabies. If the test is negative for rabies and your pet has not been vaccinated, you should vaccinate it at this time.

If the biting animal was positive for rabies and the pet is current on its rabies vaccination, then consult with a veterinarian about getting your pet a booster shot. Observe your pet for 45 days for any symptoms of rabies after the booster shot.

If the biting animal is positive and your pet has not been vaccinated or is not current with its rabies vaccination, the recommendation is to put the pet down. If you are unwilling to put the pet down, it must be confined for 6 months and vaccinated 1 month prior to release.

If the animal cannot be captured, assume it is rabid and proceed as described above.

Q. Our dog killed a skunk and when I handled the dog after the attack it was all wet. Could I have been exposed to rabies by handling the dog?

A. Although there may have been skunk saliva on the dog, the risk of an actual exposure is very low. The saliva has to enter an open wound or get onto mucous membranes. If this did not happen then there was no rabies exposure. If you think you were exposed, call your physician. In this situation you will want to test the skunk to see if it was rabid. This information will be needed by you and your veterinarian to determine what to do with your dog and it can be used by you and your physician to make a determination about your possible exposure.



Q. What if I have livestock exposed to rabies?

A. As with domestic pets, livestock that have been vaccinated for rabies should be boosted and observed for 45 days. If the livestock has not been vaccinated then the animal should be slaughtered immediately. The animal can be used for human consumption if it is slaughtered within 7 days of exposure, provided liberal amounts of the tissue around the exposed area (bite) are discarded. Consult with your veterinarian.

Q. What if I am bitten by a mouse or gopher?

A. Small rodents, including mice, rats, gophers, chipmunks and squirrels and rabbits and hares rarely have rabies and are not known to have transmitted rabies to humans. You should always consult with your physician regarding bites from these animals. Depending on circumstances, the animal may need to be humanely destroyed and the brain tested for rabies. Bites or saliva exposure from other larger rodents such as muskrats or groundhogs may result in a rabies exposure.

Q. What animal serves as the reservoir for rabies in North Dakota?

A. The skunk serves as the primary reservoir for rabies in North Dakota. Any bite from a skunk should be considered an exposure to rabies until rabies tests are negative.

Q. Do bats in North Dakota get rabies?

A. Any mammal, including bats can get rabies. Bites from bats may not be easily noticed. Bats have small teeth and bites may cause very little discomfort. You should contact your physician or a public health department if you come into contact with a bat or find a bat in your home.

Q. Can a person get rabies shots before they are exposed?

A. Pre-exposure rabies shots are recommended only for people at increased risk of coming into contact with rabies. Such people include rabies laboratory workers, veterinarians, animal control officers, and cave explorers. Some people may get pre-exposure shots when they travel to developing countries. Consult your healthcare provider or public health department for more information.

Q. I work in a high risk occupation where I have a greater risk of being exposed to rabies. What is recommended for me?

A. The Advisory Committee on Immunization Practices (ACIP) and the Centers for Disease Control and Prevention (CDC) recommend that you receive pre-exposure vaccination. This consists of three doses of vaccine administered on days 0, 7 and 21 or 28. You should be tested for protective antibody every 2 years and booster vaccination is recommended for unacceptable antibody levels. If you are working in a rabies research laboratory or are a rabies biologic production worker then you should have your antibody level checked every 6 months.

Q. If I need rabies shots, what should I expect?

A. If you never had rabies shots before, then you can expect to receive five doses of vaccine over a 28 day period and a dose of rabies immunoglobulin (RIG) on the same day



as the first dose of vaccine. Rabies immunoglobulin provides immediate protection against rabies until your body has responded to the vaccine and makes its own antibodies to rabies.

If you have been vaccinated previously with one of the currently licensed vaccines, then you will need two booster doses of vaccine. The first dose should be given as soon as possible and the second dose three days later. However, rabies immunoglobulin should not be given.

Q. What are the side effects of the vaccine?

A. As with most vaccines the most common side effect is soreness and redness at the site of the injection. More severe reactions are rare and often related to allergies to the ingredients in the vaccine. Contact your health care provider if you are having any health effects which you think might be related to the vaccine.

Q. Are the rabies shots given in the stomach?

A. No, rabies vaccine is no longer given in the stomach; it is usually given in the muscle of the upper arm.

Rabies immunoglobulin is recommended to be given at the site of the bite, if possible.

Q. When is it too late to start rabies vaccinations after an exposure?

A. Ideally, as soon after an exposure has occurred and a health care provider has determined rabies vaccination is warranted. Usually you can wait for test results from a healthy domestic animal to see if rabies shots are needed. Bites and exposures from wild animals should be treated as if the animal were rabid until rabies has been ruled out. There have been instances when a person did not start rabies shots for months after an exposure because the exposure was never suspected.

Once a person develops rabies symptoms it is too late to vaccinate against rabies.

Q. How much does rabies vaccine cost?

A. Rabies vaccine and immunoglobulin is very expensive. A typical vaccination series with the rabies immunoglobulin can cost \$1,500.00 to \$2,500.00 per person.

Q. As a local law enforcement official, what can I do protect the public from rabies?

A. If your jurisdiction has rabies vaccination ordinances and leash laws, enforcing these ordinances will help reduce the risk of rabies in your communities. Enforcing the proper confinement of animals that have bitten a person helps ensure that the animal will not escape during the observation period, so a veterinarian can declare the animal in question is healthy. It also minimizes the risk for other people or animals to be exposed to the confined animal and helps prevent people from getting unnecessary rabies shots.

Q. Where can I send an animal brain for rabies testing?



A. If a human has been exposed then the brain needs to be sent to the North Dakota Department of Health Division of Microbiology for testing. Only the brain should be sent for testing. If it is a small animal such as a mouse, the entire animal may be sent.

If there has not been human exposure, the brain tissue should be sent to the North Dakota State University Veterinarian Diagnostic Laboratory.

Q. How should I collect and ship the specimen?

A. Humanely destroy the animal, avoiding damage to the skull and brain. This should be done by a professional such as a veterinarian. A veterinarian or other trained professional should remove the head and extract the brain leaving the brain stem intact. Contact the Division of Microbiology at 701.328.6272 or visit their website at <http://www.health.state.nd.us/microlab/> for further instructions.

Q. The animal that I was exposed to has been dead for a while, can it still be tested?

A. Consult with your veterinarian to determine if the animal can still be tested. If it has been cold the animal may still be testable. Brain tissue decomposes rapidly and if the temperatures are warm the brain may be too decomposed to test.

If you have any other questions about rabies please send them via e-mail to disease@state.nd.us or call 800.472.2180.

